FINAL REPORT

REVIEW OF ARMY ANALYSIS EXTENDED

(RAAEX)

VOLUME I — EXECUTIVE SUMMARY

MARCH 1985

SPECIAL STUDY GROUP
DEPARTMENT OF THE ARMY
WASHINGTON, D.C.

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REVIEW OF ARMY ANALYSIS EXTENDED

(RAAEX)

The findings of this report are not to be construed as an official Department of the Army position, policy, or decision unless so designated by other official documentation. Comments or suggestions should be addressed to Office, Chief of Staff of the Army. ATTN: DACS-DMO

PREPARED BY:
SPECIAL STUDY GROUP
HEADQUARTERS DEPARTMENT OF THE ARMY
WASHINGTON, DC 20310

1 MARCH 1985

DACS-DMO

1 Mar 85

MEMORANDUM FOR RECORD

SUBJECT: Decisions at Meeting of Joint SELCOM on Review of Army Analysis Extended (RAAEX) Study

1.   The Joint SELCOM met at 1700, 1 February 1985, to make decisions on the recommendations of the "Review of Army Analysis Extended (RAAEX)."

2.   With the exception of those cited below, all recommendations were approved.

    a.   The following recommendations were approved on a conditional basis or were assigned for further study.

        (1) Change definition of studies and analyses; USofA tasked "a small senior level group" to arrive at a new definition of studies and analyses that would be acceptable to those affected.

        (2) Designate a staff agency to review study and analysis requirements tasked to MACOMS; ARSTAF principals to address in a brief statement to the USofA.

        (3) Develop a top-down driven Army-wide mission area analysis process: Approved. CG TRADOC concurs to the extent that "top down" means from CG TRADOC and is not an expansion of CAA into TRADOC activities.

        (4) Review and change AMMO staffing as necessary to support revised missions; Approved. Must compete for funding in PDIP presented to Management Panel.

        (5) Expand opportunities for professional development; Approved. ASA(M&RA) and DCSPER assigned to address the negative impact which long-term training has on SES performance appraisals.

        (6) Fence at HQDA approximately $5M RDTE/yr, $2M of which will create a simulation laboratory; Approved. Must compete for funds in PDIP presented to Management Panel.

        (7) Establish proponent and proponency committee for GS-1515: Approved. AMC and TRADOC(CAORA) are to agree on implementation of proponency and career management of GS-1515s.

DACS-DMO
SUBJECT: Joint SELCOM -- Review of Army Analysis Extended (RAAEX)

(8) Increased analysis support to Army in the field;
Approved within limits of constraint on military manpower.

(9) Expand mission of ARI; Unresolved. DCSPER to make
recommendation to USofA by 15 Mar 85.

(10) Increase interaction with analysis activities
external to the Army. Approved subject to identification of "bill-
payers."

b. The following recommendations were disapproved by the
SELCOM.

(1) Make AMMO a HQDA FOA reporting to DCSOPS.

(2) Co-locate AMMO with CAA for administrative and
logistical support.

(3) Assign ARI to the DAS.

3. Additional comments provided by SELCOM attendees for
consideration during implementation of the recommendations
and the DUSA(OR) response are below.

a. ACSIM agrees with the recommendation to establish a
committee for restructuring analysis community-wide research
activities but believes USAISC should have committee
representation. DUSA(OR) concurs.

b. ACSIM questions the necessity of creating a simulation
laboratory. This will be addressed by the committee cited above.

c. COA disagrees with the recommendation that high level
management should consider a new job series for cost analysts.
COA wishes to maintain the GS-1515 series for those positions.
This comment has been noted by the DUSA(OR).

BY DIRECTION OF THE CHIEF OF STAFF:

JOANN H. LANGSTON, Director
Study Program Management Office
Management Directorate

REVIEW OF ARMY ANALYSIS
EXTENDED

(RAAEX)

VOLUME I - EXECUTIVE SUMMARY

1 MARCH 1985

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REVIEW OF ARMY ANALYSIS EXTENDED
(RAAEX)

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SECTION I - EXECUTIVE SUMMARY

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BACKGROUND

In 1978, A Special Study Group under the cognizance of the Deputy Chief of Staff for Operations and Plans, Headquarters, Department of the Army was tasked by the Under Secretary of the Army to conduct a Review of Army Analysis. The purpose of that review was to assess analysis capabilities of the Army and propose practical improvements. A number of significant changes in how the Army uses studies and analyses and in organizational roles within the analytical community resulted.

In July 1984, the Under Secretary of the Army directed a follow-on review be conducted to assess results of the 1978 review and to address a number of additional issues.

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BACKGROUND

● REVIEW OF ARMY ANALYSIS - "HARDISON STUDY" CONDUCTED IN 1978

● REVIEW OF ARMY ANALYSIS IMPLEMENTED BEGINNING IN MAY 1979

● MR. AMBROSE, UNDER SECRETARY OF THE ARMY, REQUEST FOR REVISIT AND EXTENSION - JUNE 1984

● DIRECTOR OF ARMY STAFF TASKED ACTION TO DIRECTOR OF MANAGEMENT - JUNE 1984

● REVIEW OF ARMY ANALYSIS EXTENDED (RAAEX) STUDY GROUP FIRST MEETING 9 JULY 1984

● RAAEX STUDY COMPLETED 31 AUGUST 1984

STUDY PURPOSE

The purpose of Review of Army Analysis Extended is to further improve the contribution made by analysis to illumination of issues of interest to the Army and to the solution of Army problems, building upon the improvements initiated with the Review of Army Analysis conducted in 1978.

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PURPOSE

IDENTIFY MEANS TO IMPROVE THE CONTRIBUTION MADE BY ANALYSIS TO ILLUMINATION OF ISSUES OF INTEREST TO THE ARMY AND TO THE SOLUTION OF ARMY PROBLEMS.

STUDY OBJECTIVES

The objectives of the review are to:

a. Assess the extent to which the actions taken as a consequence of the prior review have improved the contribution made by analysis to illumination of issues of interest to the Army and to the solution of Army problems.

b. Identify practicable actions which would improve the following:

(1) Problems Selected for Study and Analysis - The Army analysis community should work mainly on important issues in need of illumination and on problems whose solutions would be of high benefit to the Army.

(2) Quality of Work - Army analyses should be pertinent, consistent, valid, and credible.

(3) Productivity - Army analyses should be efficiently conducted and resources should be at least adequate to minimal needs.

(4) Organizational Arrangements - The Army analysis community and supporting activities should be organized to facilitate efficient conduct of an integrated program of studies, to provide proper guidance and control of studies and analyses, to encourage coordination of related study activities, and to minimize analysis gaps and needless overlaps.

(5) Support to Army in the Field - The Army analysis community should provide support to the functions of training, planning, and operations.

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- ASSESS IMPLEMENTATION OF 1978 REVIEW OF ARMY ANALYSIS

- IDENTIFY ACTIONS TO IMPROVE

  - PROBLEMS SELECTED FOR STUDY AND ANALYSIS
  - QUALITY OF WORK
  - PRODUCTIVITY
  - ORGANIZATIONAL ARRANGEMENTS
  - SUPPORT TO THE ARMY IN THE FIELD

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SCOPE

The scope of the review is as follows:

- Types of Analysis - All analyses defined as studies in AR 5-5 and other operations research/systems analysis activities of the Army.

- Organizations - Primary attention was given to those elements of the HQDA, DA FOA, AMC, and TRADOC, which are involved directly in Army Studies and analyses or which employ operations research techniques habitually and to a significant degree in support of their work.

The overall task is to assess the Army's current analysis system and its uses and to propose specific improvements in policy, procedure, programs, and organizations. Specific parts subordinate to this overall task are discussed in Section II of the report.

The study excluded any examination of the Arroyo Center because of the infancy of this project.

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SCOPE

- TYPES OF ANALYSIS

  - • AR 5-5 STUDIES

  - • OTHER ARMY OPERATIONS RESEARCH ACTIVITIES

- ORGANIZATON

  - • PRIMARY ATTENTION TO HQDA, DA FOA, AMC AND TRADOC ACTIVITIES

  - • OTHER ORGANIZATIONS WHICH EMPLOY OPERATIONS RESEARCH TECHNIQUES

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TASKS

To answer the study objectives sixteen tasks were developed and addressed. Section II of the report consists of the complete reports on each of the tasks.

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TASKS

1. DEFINITION OF STUDIES AND ANALYSIS

2. IMPLEMENTATION OF 1978 REVIEW OF ARMY ANALYSIS

3. PROGRAM FOCUS

4. QUALITY ASSURANCE & RESEARCH

5. TREATMENT OF COUNTERMEASURES AND COUNTER-COUNTERMEASURES

6. ANALYTICAL SUPPORT OF FUNCTIONAL AREAS

7. ACQUISITION AND TRAINING OF ARMY ANALYSTS

8. ANALYSIS MISSIONS AND RESOURCES AND AMIP

9. INTER-RELATIONSHIP OF ANALYSIS AND TESTING

10. INTER-RELATIONSHIP OF ANALYSIS AND INTELLIGENCE

11. INTER-RELATIONSHIP OF ANALYSIS AND COSTING

12. MANPOWER AND PERSONNEL ANALYSIS

13. LOGISTICS ANALYSIS

14. PRODUCTION OF VULNERABILITY AND LETHALITY INPUT DATA

15. INTERFACE WITH EXTERNAL ANALYSIS ACTIVITIES

16. ANALYSIS SUPPORT TO THE ARMY IN THE FIELD

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GUIDING PRINCIPLES

Army studies that propose organizational realignments or physical relocations generate highly counterproductive conflicts over organizational prerogatives and/or Congressional intervention. There is little evidence (and some contrary evidence) that physical relocations accomplish intended purposes. The study group set out to consider organizational realignments and physical relocations only as last resort solutions. The study group also sought to avoid proposing manpower increases both because manpower is a scarce Army resource and the Army analytical community enjoys relatively abundant manning.

As the primary guiding principles the study group sought improvements to Army analysis that could be achieved by better management practices and by exploiting state-of-the-art technology in telecommunications and automated data processing.

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- AVOID

  - ● ORGANIZATIONAL REALIGNMENTS

  - ● MANPOWER INCREASES

- SEEK

  - ● BETTER MANAGEMENT PRACTICES

  - ● EXPLOITATION OF TECHNOLOGY

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APPROACH

- A set of tasks was developed to address the study objectives

- The tasks were assigned to indivduals or small committees which operated more or less independently

- Periodic in-process reviews were held with all committees and the study Co-Directors to:

  - Review progress

  - Receive feedback from the study group

  - Receive guidance from study leaders

- The study Co-directors conducted extensive interviews with senior users and producers of analysis. The substance of these interviews was made known to all study group members.

- Data collection in support of all study tasks was largely done on a centralized basis by distribution of a data collection instrument to Army analysis activities. The data were centrally reduced and provided to all task committees.

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APPROACH

- DEFINITION OF STUDY TASKS

- ASSIGNMENT OF TASKS TO INDIVIDUALS AND SMALL GROUPS (1-3 PEOPLE)

- PERIODIC (AT LEAST WEEKLY) STUDY TEAM REVIEW OF TASK PROGRESS AND FEEDBACK.

- COMMON STUDY TEAM ACTIVITIES - INFO BRIEFINGS, VISITS

- EXTENSIVE INTERVIEWS WITH USERS AND PRODUCERS OF ANALYSIS

- CENTRALIZED DATA COLLECTION AND REDUCTION

- PREPARATION OF REPORT IN ELABORATED BRIEFING FORMAT

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STUDY TEAM

Study Team Co-Directors:

Mr. Walt Hollis, Deputy Under Secretary of the Army
(Operations Research)

Mr. E.B. Vandiver III, Technical Advisor to the Deputy
Chief of Staff for Operations and Plans

Study Team Members:

Mr. Dick Lester, ODUSA(OR)
LTC Bill Gardepe, ODUSA(OR)
Mr. Peter Paternoster, ODCSOPS
Mr. Gene Visco, ODM
Dr. Devin Bent, ODM
Mr. Bill Barr, ODM
Mr. Wayne Knox, OCOA
Mr. Brit Harrison, OACSI
Mr. Stewart Timmerman, LEA (for DCSLOG)
MAJ Bob Miller, ODCSPER
Mr. Hunter Woodall, ODCSRDA
Dr. Jim Metzger, CAA
Ms. Zelma Harms, CAA
Dr. Joe Ward, ARI
Mr. Fred McCoy, OTEA
Mr. Pete Reid, AMSAA
COL Bill Weihl, HQ TRADOC
Mr. Richard Miller, TORA
MAJ Dave Leslie, MDW
Mr. Bill Beuch, DNA
Dr. John Lazaruk, HQ AMC

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STUDY TEAM PARTICIPANTS

COMMANDS

TRADOC
- HQ TRADOC
- TORA

AMC
- HQ AMC
- AMSAA

MDW

HQDA

DUSA(OR)
OCSA-DM
ODCSOPS
ODCSPER
ODCSRDA
OACSI
OCOA

FOA/SSA

LOGISTICS EVALUATION AGENCY (LEA) (REPRESENTING ODCSLOG)
CONCEPTS ANALYSIS AGENCY (CAA)
OPERATIONAL TEST AND EVALUATION AGENCY (OTEA)
ARMY RESEARCH INSTITUTE (ARI)

SCHEDULE

The study was initiated on 9 July by a meeting of the study team members to review the study purpose and objectives and develop the study approach. Preliminary planning and team organization were completed and individual research activities were initiated on 16 July. The study was completed on 31 August. A briefing to selected senior Army leaders was scheduled for 20 September and a further presentation to the SELCOM (Augmented) was planned for October.

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SCHEDULE

INITIAL MEETING	9-10 JULY
FULLTIME START	16 JULY
IPR	1 AUGUST
REPORTS COMPLETED	31 AUGUST
FINAL BRIEFING	OCTOBER

DISCLAIMER

The co-directors acknowledge the dedicated professional efforts of the members of the study group without whose help this review could not have been accomplished. The responsibility for the findings and recommendations of this study is, however, solely that of the co-directors.

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DISCLAIMER

THE FINDINGS AND RECOMMENDATIONS OF THIS STUDY ARE SOLELY THE RESPONSIBILITY OF THE STUDY CO-DIRECTORS.

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OVERALL FINDINGS

Implementation of the recommendations of the 1978 Review of Army Analysis is discussed in a succeeding chart. In general, it was found that the recommendations had been implemented and the results were beneficial.

In the main, it was found that the activities comprising the Army analysis community are properly assigned and missioned. Information on unsatisfied demand would indicate that more resources are needed; however, this is a finding that could probably be derived from a detailed examination of any function in the Army. This study has interpreted the unsatisfied demand as an indication of the usefulness of the community to the Army, and has, to the extent possible, sought improvements that do not require substantial additional resources. It should be noted though that the numbers of people available to do the work and, to a lesser extent, the statutory limitations on levels of remuneration of those personnel do have a negative impact on the strength, quality and responsiveness of Army analysts.

The study sought and found many areas in which improvements to Army analysis could be achieved. These are described in some detail in the Thrusts of the Recommendations and the Recommended Actions. Because of the goals of the study there is little discussion in this report of the many and varied strengths of the analysis community. The negative connotations of this are unfortunate, but inevitable in a study of this kind.

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OVERALL FINDINGS

OVERALL FINDINGS

- THE RECOMMENDATIONS OF THE 1978 REVIEW OF ARMY ANAYSIS HAVE ALMOST ALL BEEN IMPLEMENTED, ALTHOUGH TO VARYING DEGREES, WITH RESULTS THAT ARE PERCEIVED TO BE BENEFICIAL TO THE ARMY.

- THE ACTIVITIES COMPRISING THE ARMY ANALYSIS COMMUNITY ARE IN THE MAIN PROPERLY ASSIGNED AND MISSIONED AND ARE CONSIDERED VERY USEFUL TO THE ARMY.

- SUBSTANTIAL IMPROVEMENTS IN ARMY ANALYSIS CAN BE ACHIEVED IN STUDY PROGRAM MANAGE- MENT, STUDY AND MODEL INTEGRATION, QUALITY OF ANALYSIS, SUPPORT TO CERTAIN FUNCTIONAL AREAS, AND IN INTERFACING ANALYSIS WITH OTHER RELATED ACTIVITIES.

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IMPLEMENTATION OF THE 1978 REVIEW OF ARMY ANALYSIS

There were 39 approved recommendations resulting from the 1978 Review of Army Analysis. All but two of these have been implemented in whole or in part. The two recommendations not implemented concerned the development of vulnerability and lethality data (revisited in RAAEX), and the transfer of HQDA contract funds to CAA. The latter proved not implementable for administrative reasons.

Although there are no objective measures of the extent to which implementation has benefited the Army the perception of knowledgeable individuals is that overall the effect has been highly beneficial. Most noteworthy of these benefits are: the new generation of combat and support simulations being developed under the Army Model Improvement Program and the general usefulness of the concept of a hierarchy of integrated models; improvements in CAA support to HQDA; expansion in analysis capability at the TRADOC Combined Arms Center; increased emphasis on quality control programs and professional development programs; and better accounting for the resources associated with the Army Study Program.

One of the major features of the Review of Army Analysis was the development of a general concept of analysis. Besides underlying the hierarchy of models this has served to sharpen the focus of analytical agencies, and has served as a unifying mechanism for the Army's geographically and organizationally dispersed analytical community and has fostered coordination and cooperation within the community.

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IMPLEMENTATION OF THE 1978 REVIEW OF ARMY ANALYSIS

- OF THE 39 APPROVED RECOMMENDATIONS 37 HAVE BEEN IMPLEMENTED IN WHOLE OR IN PART

- OVERALL THE EFFECT OF IMPLEMENTING THESE RECOMMENDATIONS IS PERCEIVED TO HAVE BEEN BENEFICIAL. ESPECIALLY NOTEWORTHY ARE:

  - IMPROVED MODELS BEING DEVELOPED UNDER THE ARMY MODELS IMPROVEMENT PROGRAM

  - IMPROVEMENT IN CAA SUPPORT TO HQ DA

  - EXPANSION IN ANALYSIS CAPABILITY AT THE TRADOC COMBINED ARMS CENTER

  - INCREASED EMPHASIS ON QUALITY CONTROL PROGRAMS

  - BETTER ACCOUNTING FOR RESOURCES ASSOCIATED WITH THE ARMY STUDY PROGRAM

- THE CONCEPT OF ANALYSIS DEVELOPED IN THE REVIEW OF ARMY ANALYSIS HAS BEEN VERY USEFUL IN UNIFYING THE ARMY ANALYSIS COMMUNITY AND ENCOURAGING INCREASED COORDINATION AND COOPERATION

THRUSTS OF THE RECOMMENDATIONS

As recommendations for action emerged from the task committees they naturally grouped as follows:

- Study Program Management
- Study and Model Integration
- Quality of Analysis
- Functional Support
- Analysis Interfaces

What follows are the recommendations that describe the direction of the thrust within the grouping listed.

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THRUSTS OF THE RECOMMENDATION

- STUDY PROGRAM MANAGEMENT

  - ●● CLARIFY DEFINITIONS OF STUDIES AND ANALYSIS WITH PROVISIONS FOR APPROPRIATE DEGREES OF MANAGEMENT

  - ●● BETTER DEFINE MAJOR ARMY ISSUES TO ADDRESS IN THE ARMY STUDY PROGRAM AND ACHIEVE BETTER PROGRAM BALANCE

- STUDY AND MODEL INTEGRATION

  - ●● DEVELOP A TOP DOWN DRIVEN ARMY-WIDE MISSION AREA ANALYSIS PROCESS TO PROVIDE GREATER HORIZONTAL AND VERTICAL INTEGRATION OF FORCE AND COMBAT DEVELOPMENTS

  - ●● REAFFIRM COMMITMENT TO THE HEIRARCHY OF MODELS AND THE ARMY MODEL IMPROVEMENT PROGRAM

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THRUSTS OF THE RECOMMENDATIONS

- QUALITY OF ANALYSIS

  •• IMPROVE POLICY AND PROCEDURES FOR ASSURING QUALITY OF ARMY ANALYSIS

  •• EMPHASIZE ANALYSIS RESEARCH EFFORTS TO PROVIDE FOR GROWTH IN FUTURE CAPABILITY

  •• IMPROVE MANAGEMENT OF THE PROFESSIONAL DEVELOPMENT OF MILITARY AND CIVILIAN
     OPERATIONS RESEARCH ANALYSTS

- FUNCTIONAL SUPPORT

  •• INCREASE ANALYSIS SUPPORT TO THE ARMY IN THE FIELD

  •• INCREASE CAPABILITY FOR CONDUCTING ANALYSIS OF MANPOWER AND PERSONNEL ISSUES

  •• INCREASE CAPABILITY FOR CONDUCTING ANALYSIS OF LOGISTICS ISSUES

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THRUSTS OF THE RECOMMENDATIONS

- ANALYSIS INTERFACES

  - INCREASE INTERACTION WITH ANALYSIS ACTIVITIES EXTERNAL TO THE ARMY

  - INCREASE INTEGRATION OF TESTING AND ANALYSIS

  - STRENGTHEN INTERFACE BETWEEN COST ANALYSIS AND OTHER ARMY ANALYSIS

  - IMPROVE PROCEDURES FOR PROVIDING ESSENTIAL VULNERABILITY AND LETHALITY INPUT DATA

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RECOMMENDED ACTIONS - STUDY PROGRAM MANAGEMENT

1. Clarification of definitions of studies and analysis and provision for appropriate degrees of management.

  a. Change AR 5-5 to define both studies and analyses in the Army, but factored into the two components for management and oversight purposes. Define studies comparatively narrowly for intensive management and define analyses very broadly for general oversight. Establish an oversight procedure based on reporting of completion of quality reviews. At the same time, exploit the opportunity to merge AR 5-14 into the expanded AR 5-5.

  b. Propose to OSD the Army definitions of "studies and analysis" for PB 21, the FDS, and DODD 5010.22.

    (1) PB 21 -

      (a) Change the definition of "studies and analyses" to the Army proposal
      (b) Narrow the definition of "Professional Management Services by Contract" to administrative-type services
      (c) Make "consultants and experts" a subcategory under other appropriate categories such as "studies" or "management services"

    (2) FPDS - Redefine "Special studies and analyses" in the Federal Procurement Data System (FPDS) like the Army proposal

    (3) 5010.22 - Change definition of studies to focus on decision support

2. Better definition of major Army issues to be addressed in the Army Study Program and better program balance

  a. Institutionalize identification of major analysis issues.

    (1) Army Leadership identifies and prioritizes major issues (Process similar to Arroyo Center program development)

    (2) Identify and address specific major analysis issues which

      (a) Require a broad range of analytic capabilities
      (b) Cut across command and functional boundaries.

  b. Emphasize integration of analysis, staff process and decisionmaking

    (1) Develop and implement improved procedures for early identification of event-driven study requirements.

    (2) Relate studies and analyses findings to support of Army decisions.

RECOMMENDED ACTIONS - STUDY PROGRAM MANAGEMENT (CONTINUED)

c. To achieve better program balance:

(1) HQDA should:

(a) Designate a staff agency to be responsible to review study and analysis requirements tasked to each MACOM to discipline HQDA taskings

(b) Establish priorities for study and analysis tasking

(c) Ensure a proper balance of studies and analyses across functional areas

(2) TRADOC, AMC, and CAA should:

(a) Review their study and analysis effort applied in support of functional and mission areas to seek an appropriate balance of analytical effort within the constraints of HQDA taskings and priorities, resources available, and internal priorities

(b) Examine increased contractor support of routine technical support services to free analysis to work on more important problems

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RECOMMENDED ACTIONS - STUDY AND MODEL INTEGRATION

1. Development of a top-down driven Army-wide mission area analysis process to provide greater horizontal and vertical integration of force and combat developments.

a. Restructure the MAA process

    (1) Use top-down approach

    (2) Define missions strategically and tactically, not functionally

    (3) CAA theater analysis to

        (a) Prioritize theater level deficiencies

        (b) Identify logistics support requirements

        (c) Define scenarios for TRADOC analysis

    (4) TRADOC corps/division level analysis to

        (a) Prioritize functional deficiencies

        (b) Define scenarios for functional center analyses

    (5) TRADOC functional centers assess needs in their mission areas and develop and prioritize solutions to functional deficiencies

    (6) TRADOC integrating centers screen and prioritize functional solutions

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2. Reaffirmed commitment to the heirarchy of models and the Army Model Improvement Program

    a. Continue to implement AMIP

    b. Army Models Committee establish priorities and provide guidance concerning development of: Future Development of the Hierarchy, Technical Interfaces & Library Entries, Functional Models, Analytical Models, Training Models, Data Bases, and Logistics Representation.

    c. HQDA continue to provide resources to support development priorities established by the Army Models Committee

    d. Make AMMO a HQDA FOA reporting to the DCSOPS. (Delegation to DCSOPS Technical Advisor is suggested.)

    e. AMMO focus on completion of development of current models, expansion of hierarchy to encompass models for training and operations, interface functional models, and development of future versions of the hierarchy.

    f. Co-locate AMMO with CAA for administrative and logistical support.

    g. Review and change AMMO staffing as necessary to support the revised missions.

    h. HQDA assign oversight reponsibility to a small executive committee in place of the existing Army Models Committee

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RECOMMENDED ACTIONS – QUALITY OF ANALYSIS

1. Improved procedures for assuring quality of Army analysis.
   a. Clarification of roles and missions of TRADOC study and analysis activities would contribute to improving the quality of TRADOC analysis. The following is recommended for consideration by the TRADOC Commander.
   (1) Headquarters CD element
      (a) Assign tasks
      (b) Establish priorities
      (c) Allocate resources
      (d) Integrate integrating centers
      (e) Supervise command level Quality Control
   (2) Integrating centers
      (a) Battlefield integration of functional O&O concepts
      (b) Cross-functional trade-offs
      (c) Echelons above brigade force structure and doctrine
      (d) QC over functional center S&A activities
      (e) Conduct MAA using top-down approach (CAC lead)
   (3) Functional centers
      (a) O&O concepts for BNTF and below
      (b) Small unit and system training analyses
      (c) Mini-COEA (force-on-force not major element)
      (d) QC of internally developed S&A
      (e) Long-range functional area test and analysis program
      (f) Support MAA activities of integrating centers
   (4) TORA
      (a) Primary advisor to HQ on S&A activities (resource allocations, QC)
      (b) Support integrating and functional centers
      (c) Improve analytic tools and techniques
      (d) Assume lead for major COEA (force-on-force a major element)
      (e) QC of internally developed S&A; support HQ in command-wide program

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RECOMMENDED ACTIONS - QUALITY OF ANALYSIS (CONTINUED)

b. Restructure and discipline study and analysis front-end planning and tasking process

   (1) Improve planning to support
      (a) Issues identified by subordinate elements
      (b) Data development
      (c) Research on tools and techniques
   (2) Place more emphasis on doctrine, tactics, force structure, evaluation of operational plans, and training evaluations; less on system assessments
   (3) Improved tasking
      (a) Establish control over taskings
      (b) Streamline procedures

c. Expand the set of standard scenarios available to support studies and analysis
   (1) Develop model specific base cases
   (2) Develop variations on base case to reflect uncertainty about force levels and mixes, terrain, weather, tactics, and visibility

d. Improve utility of simulation models
   (1) Establish community-wide documentation standards
   (2) Dedicate resources to document existing models
   (3) Acquire improved techniques for documenting and maintaining documentation of models
   (4) Develop better techniques for pre-processing model inputs (scenarios) and post-processing outputs.
   (5) Support research designed to exploit new modeling approaches

e. Improve capability to perform reactive threat analyses
   (1) Capture potential threat reaction to US initiatives
   (2) Reflect uncertainty associated with effectiveness estimates
   (3) Assign responsibility for reactive threat force level analysis to analytic agencies
   (4) Require analysis of threat reaction in agency study plans
   (5) Task SAGs to report on adequacy of reactive threat analysis

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RECOMMENDED ACTIONS - QUALITY OF ANALYSIS (CONTINUED)

f. Expand the Army Quality Control System, based on peer review, for Army analyses
  (1) Develop agency/activity/commodity command review programs
  (2) Provide for MACOM review and submission to HQDA
  (3) ODUSA(OR) conduct program of selected AD-HOC reviews

j. Strengthen SAG QC capabilities
  (1) Conduct more reviews by small, informal groups of specialists
  (2) Provide earlier access to analysis results
  (3) Have small functional groups report issues to full SAG for resolution
  (4) SAG recommendations that are accepted for implementation should be documented
as amendments to the study directive

h. Tighten up study reporting procedures
  (1) Require draft study reports at HQ DA prior to the relevant decision
    (a) 30 to 60 days prior to decisions desirable for all studies
    (b) 60 days required for studies supporting materiel acquisition decisions
  (2) Studies should be scheduled to accomodate report drafting

i. Expand opportunities for professional development
  (1) Exploit community-wide research program opportunities
    (a) In-house projects
    (b) Work with simulation laboratory
  (2) Educational opportunities
    (a) Provide for analyst exchanges with academia (NPS, AFIT, etc)
    (b) Provide short courses for management
  (3) Provide for intra-community analyst exchanges
  (4) Provide for military school attendance by civilian analysts
    (a) Basic and career courses
    (b) Staff and war colleges

j. Establish procedures that will improve access to analytic community by special DA
activities such as STF, DAPO, ADEA
  (1) Assign an experienced senior analyst to each such activity to serve as
advisor and point of contact with analysis community
  (2) Designate an analysis agency to serve as focal point of support

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2. Greater emphasis on analysis research efforts to provide for growth in future capability

   a. Restructure community-wide research activities

     (1) Coordinate activities and focus on key issues

     (2) Focus on improving analytic tools and techniques

     (3) Provide control by a committee on analytic research

       (a) Chair: DUSA(OR)

       (b) Membership:

          HQDA

          TRADOC

          AMC

       (c) Responsibilities:

          Establish priorities

          Allocate resources

          Quality control

     (4) Approximately $5M RDTE/yr fenced at HQDA

   b. Create a simulation laboratory as a major element of the research program

     (1) Focus on

       (a) Exploiting new hardware/software capabilities, e.g., concurrent processing, aggregation techniques, graphics

       (b) Developing new modeling techniques to improve efficiency

       (c) Developing automated documentation techniques

     (2) Resource at 20-25 PMY/$2-2M RDTE/yr (included in $5M mentioned above)

     (3) Exempt from standard ADP procurement regulations

     (4) Establish committee under DUSA(OR) to develop concept plan

   c. A stable fraction of the manpower assigned to major analytical agencies should be allocated to "internally generated" tasks, mostly focused on improving tools and techniques. The RAAEX Study Team suggests 20 percent as a guideline.

RECOMMENDED ACTIONS - QUALITY OF ANALYSIS (CONTINUED)

    d.   Create programs and dedicate resources to identifying and filling critical data voids:

    (1) Support analysis designed to define critical data voids

    (2) Establish a mechanism for coordinating and prioritizing data needs

    (3) Establish coordination between analysis and testers to improve the productivity of programmed tests and initiate tests and experiments explicitly to fill data voids

    (4) Involve TRADOC boards more in the collection of crew and small unit performance data

    (5) Exploit field training exercise opportunities, to include the NTC activities, to collect unit performance data in conjunction with FORSCOM Headquarters

    (6) Initiate research to explore potential uses of historical data

    (7) Establish an operational data base manager within TRADOC to provide a central repository of that data

3. Improved management of the professional development of military and civilian operations research analysts.

    a. Continue proponency and maintain the SC 49 specialty code as they presently exist

    b. DCSPER examine the feasibility of providing training in selected skills to officers with specialties such as 41 and 75 and awarding these officers an Additional Skill Identifier

    c. DCSPER/TRADOC consider providing all officers with some OR/SA training at Officer Advanced Courses

    d. Break out GS-1515 from engineering and scientist career field for Army career management purposes

    e. Establish a Proponent and Proponency Committee for GS-1515 much like SC 49 counterpart

    f. Support Army civilian training, education, and development system

    g. Request OSD to pursue with OPM more stringent entry level standards for the GS-1515 series

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RECOMMENDED ACTIONS - FUNCTIONAL SUPPORT

1. Increased analysis support to the Army in the field.
   a. Provide field commands a method to task study efforts to Army analysis agencies. SPMO should be the HQDA facilitator for accomplishing this task.
   b. Support efforts to staff ORSA cells at the Army Component Commands of the Unified Commands.
   c. Examine the possibility of assigning SC 49 officers in some TOE units to support application of analytical techniques to planning and training.
   d. Examine potential methods (e.g., electronic networking) to improve the ability of the ORSA cells to access information being generated by major analytical agencies.

2. Increased capability for conducting analysis of manpower and personnel issues.
   a. Establish an SES-level technical advisor to the DCSPER to advise on and assist in the management and control of:
      (1) Short-term research, studies, and analysis requirements
      (2) Research, studies, and analysis cutting across functional lines
      (3) Formulation of guidance for research, studies, and analysis
      (4) Long-term requirements for research, studies, and analysis
      (5) Negotiations of formal work agreements
   b. Increase Army capability to monitor, control, and validate personnel/manpower requirements analyses as part of the materiel acquisition process. Feasibility of accelerating ARI programs to provide in-house capability should be examined.
   c. Expand ARI mission to encompass studies and analysis of personnel issues.
      (1) Develop studies and analysis capability in ARI
      (2) Enhance military operations research capability and expertise
      (3) Organize ARI into research and studies and analysis elements
      (4) Fund studies and analysis with OMA
   d. Ensure ARI provides support to all Army elements interested in manpower and personnel issues
      (1) Assign ARI to the DAS
      (2) Establish lines of credit for users
      (3) Establish a program review committee of users

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e. Focus CAA studies of manpower to address primarily issues requiring CAA's special expertise in force design, force structuring, and theater campaign simulation

f. Include representatives from personnel/manpower/training community in the models review process

g. Make the Director of the TRADOC Operations Research Activity (TORA) the single technical manager of the major analytical resources of TRADOC including those at the Soldier Support Center.

3. Increased capability for conducting analysis of logistics issues.

a. Make the Director of the TRADOC Operations Research Activity (TORA) the single technical manager of the major analytic resources of TRADOC including those at the Logistics Center

b. Explore establishment of line of credit or a less formal mechanism for the Logistics Evaluation Agency to obtain analytical support from AMSAA

c. Establish and fill an SES-level operations research/systems analyst position of technical advisor to DCSLOG with mission to --

   (1) Oversee logistics analysis

   (2) Provide direction on goals and tools for analysis

   (3) Ensure utility of analysis

d. Assign an analyst in ODUSA(OR) responsibility for monitoring logistics analysis

e. Expand logistics output from CASTFOREM through broader set of scenarios

f. Develop and implement expanded logistics module for CORDIVEN

g. Prepare specifications for a detailed standalone logistics model linked to CORDIVEM

h. Ensure that CAA studies supporting logistics are those that primarily address force structure or force design issues, or take advantage of CAA's unique capabilities in theater combat simulation

i. Examine, revise, and streamline TAA and OMNIBUS processes in order to --

   (1) Take advantage of representation of logistics in FORCEM

   (2) Ensure consistency of FORCEM computations and subsequent offline computations

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1. Increased interaction with analysis activities external to the Army
   a. Improve analysis interface with OJCS
      (1) Request OJCS to formalize service roles in the Modern Aids for Planning project to include development, test, and guidance responsibilities.
      (2) Concepts Analysis Agency and Joint Analysis Directorate conduct regular interchanges on theater level models and data.
   b. Improve analysis interface with the Air Force by seeking to amend the Army - USAF Memorandum of Agreement to provide for:
      (1) Mechanism for continuing joint identification of study and test issues
      (2) Mechanism for joint tasking of joint study and test issues
      (3) Conduct of joint studies and tests
      (4) Exchange of analysts between Army and USAF analysis activities
      (5) Establishment of a joint Army - USAF analysis activity to be located at the Combined Arms Center, Fort Leavenworth
   c. Improve analysis interface with the Department of the Navy by exploring possibility of a memorandum of agreement to formalize coordination and cooperation on joint studies
   d. Improve analysis interface with OSD
      (1) Continue general policy of open disclosure and cooperation with OSD elements with an interest in analysis.
      (2) AMC examine Army technical programs to identify potential tri-service programs that should be conducted similar to the JTCG program on munitions effectiveness. If such programs are identified seek OSD implementation.
   e. Improve analysis interfaces with allies
      (1) Continue active support to analysis activities under international agreements.
      (2) Continue to encourage and expand joint analysis efforts with selected allies on a bi-lateral basis

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RECOMMENDED ACTIONS - ANALYSIS INTERFACES (CONTINUED)

2. Increased integration of testing and analysis by:

    a. Utilizing the Test, Evaluation, Analysis, and Modeling (TEAM) Plan and its associated working group as the central planning mechanism for support to OTEA continuous evaluation mission.

    b. Initiating regular reporting to DA concerning status of TEAM planning

    c. Examining the feasibility of utilizing an expanded TRADOC Mission Area Analysis Test Advisory Group (MAATAG) as the central planning mechanism for test/analysis interface for combat developments

    d. Requiring a section of the MAATAG report or other suitable document to state the provision for integration of testing and analysis.

3. Increased interaction with the intelligence community to improve threat representation in analysis with special emphasis on reactive threats and CM/CCM.

    a. Adopt G2 - G3 approach to analysis at all levels. Establish "Red Teams" in analysis organizations.

    b. ACSI assess adequacy of training and experience of threat managers in MACOMs.

    c. Change AR 5-5 and PAM 5-5 to promote top level encouragement of feedback from analysis to the intelligence community.

    d. Assign joint analysis tasks for analysis and intelligence activities at common sites.

    e. Improve top-level front-end and mid-term review of threat treatment in studies and analysis.

    f. Direct combined training of intelligence and systems analysts on each other's methodology.

    g. Direct systems analysis and intelligence communities to jointly develop scientific methods for use in intelligence analysis.

    h. Increase the amount and quality of effort in
        (1) Model hierarchy, including links
        (2) Scenario development and analysis
        (3) Stimulators to emulate full force capabilities

RECOMMENDED ACTIONS - ANALYSIS INTERFACES (CONTINUED)

i. Direct an evaluation of generic threats by a joint analyst-intelligence task force
j. Investigate the feasibility of intelligence courier services for study activities
k. Train contracting officer representatives to assess contractor intelligence needs

earlier

l. Improve treatment of countermeasures and counter-countermeasures in Army analysis:
(1) Direct and fund effort to establish technical CM/CCM data base
(a) Assess size of task
(b) Assign priority in relation to other ongoing work
(c) Establish milestones

(2) Direct and fund effort to document key models and establish configuration

control

(3) Make decisions on test facilities
(4) Stimulate thinking about total force tradeoffs
(5) Improve front-end guidance and mid-term review
(6) Direct a review and evaluation of the impact of security constraints and develop

solutions for:
(a) In-house analyses
(b) Contractors

(7) Stimulate better visibility and analysis of assumptions and model drivers --

quality results with range of values
(8) Direct effort to obtain and exploit combat data by adding to AR XXX-XX,

"Adapting for Combat -- Lessons Learned," the following provisions:
(a) Frequent (at least twice/year) training of predesignated military

observation team members
(a) Review key knowledge gaps identified in studies/analyses
(b) Collect data at NTC and other training sites
(b) Timely release of US materiel performance data by buyers
(a) part of FMS agreements
(b) Specific language in Data Exchange Agreements
(c) Joint (US/ally) reconstruction of selected battles using existing wargame

methodologies considering:
(a) Suppression, participation, execution of doctrine under fire
(b) Leadership, morale, sleep loss, stress

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(d) Provide for collection and analysis of data concerning combat damage to materiel system components and combat damage repair time and parts consumption

(e) Provide for analysis and evaluation of reconstitution accomplishments and failures from crew-served to highest applicable unit level

(f) Add classified enclosure describing range of examples of past combat lessons learned and major shortfalls

(9) Encourage increased top-level influence on intelligence community -- systems analysis community interactions

(10) Direct task to evaluate quality of questions asked of intelligence community

(a) Threat allocation of resources

(b) Consideration of all force capabilities

(11) Direct task for systems analysis community to help intelligence community develop disciplined projection methodology utilizing decision theory

(12) Plus-up the Knowledgeable Users Group to:

(a) Integrate combat models, O&O, field tests, exercises

(b) Enhance feedback, interaction among tacticians, developers, intelligence industry

(c) Address Blue and Red as a system

(13) Direct an evaluation of planning and treatment in Army models and model linkages

(a) All components of the force

(b) Coalition warfare

(14) Establish a task to obtain and evaluate combat data by joint analysis efforts with recent combatants

(15) Direct the analysis community to continue their efforts to better understand and utilize combat data and information

(16) Conduct frequent senior management reviews of study agency/activity workload distribution, and of details of on-going studies and analyses

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RECOMMENDED ACTIONS - ANALYSIS INTERFACES (CONTINUED)

4. Strengthened interface between cost analysis and other Army analysis
  a. Emphasize use of Materiel System Requirements Specification (MSRS) as an interfacing mechanism
    (1) Improve execution of process by requiring MSRS coordination meeting 5 months prior to ASARC
    (2) Expand distribution of MSRS to AMSAA, TRASANA, and TRADOC cost analysis activities
  b. Implement the Force Structure Requirements Specification (FSRS) concept.
    (1) Design an FSRS
    (2) Develop force costing architecture
  c. Give higher level management emphasis to creating a new cost analysis job series
  d. Review cost analysis training course utilization

5. Improved procedures for providing essential vulnerability and lethality (V&L) input data
  a. Establish procedures for users of V&L data and weapon system effectiveness data to coordinate requirements as early as possible with BRL and AMSAA
  b. BRL should plan and execute long-term program of --
    (1) Methodology development
    (2) Raw data Generation
    (3) Application
  c. AMC should resource BRL to accomplish program
  d. BRL should prepare long-term plan for generating intelligence data
  e. OACSI should petition DIA for GDIP funds to finance data generation and application on foreign systems.
  f. AMC should --
    (1) Review processes for obtaining all types of V&L data (not just physical)
    (2) Determine if deficiencies exist
    (3) Make recommendations for improvement
    (4) Implement recommendations where possible

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